

PATENT

Attorney Docket No. 0635-0057

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:  
Simon SAUL et al

Serial No.: 10/549,357

Filed: September 16, 2005


PCT Application No.: PCT/GB04/001180

Intl. Filing Date: March 18, 2004

Examiner:

Art Unit:

For: ENZYMATIC PROCESS FOR STEREO-  
SELECTIVE PREPARATION OF CHEMICAL  
COMPOUNDS IN HYDROFLUOROCARBON  
SOLVENTS

|                                                                                                                                                                                                                                                                                          |                                                                                     |
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Commissioner for Patents  
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**INFORMATION DISCLOSURE STATEMENT**

Pursuant to 37 C.F.R. §1.97, Applicant hereby calls the Examiner's attention to documents listed on the attached form, which documents may be material to the examination of this application. Copies of the references are enclosed herewith for the Examiner's consideration.

No inference should be drawn that the attached list sets forth a comprehensive investigation of the prior art, that any

or all are pertinent to the invention, or that any apparatus disclosed is equivalent to the subject invention.

The citation of the above-discussed documents is not to be construed as an assertion that more pertinent art could not possibly be in existence. Citation of any document herein is not to be construed as an admission that any subject matter disclosed in the document is necessarily within the inventive field of endeavor, that any disclosure is necessarily prior in time to a particular date which may be relevant to the instant patent application, and/or that any disclosure is otherwise necessarily prior art with respect to the instant invention.

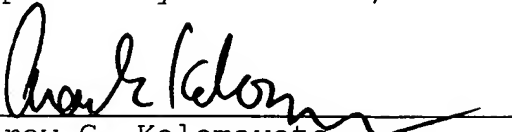
Applicant also respectfully reserves the right to later set forth how the instant invention is distinguished over the disclosure of any document or other art, including the disclosure of those documents discussed herein, that may be cited by the Examiner in rejecting a claim in the instant patent application.

The references disclosed herewith were cited in the International Search Report dated June 29, 2004, and are referred to in the International Preliminary Examination Report dated June 28, 2005, for this application.

This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits. Accordingly, it is believed that no fee under 37 CFR 1.97(c) is

required. If it is determined that a fee is required, please charge our Deposit Account No. 50/1039.

Respectfully submitted,

  
Andrew G. Kolomayets  
Registration No. 33,723

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| Application Number | 10/549.357 |
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| Filing Date | September 16, 2005 |
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| First Named Inventor | Simon SAUL |
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Art Unit

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## U. S. PATENT DOCUMENTS

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## FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No. <sup>1</sup> | Foreign Patent Document                                                             | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines,<br>Where Relevant Passages<br>or Relevant Figures Appear | T <sup>5</sup> |
|--------------------|-----------------------|-------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------|----------------|
|                    |                       | Country Code <sup>3</sup> "Number" <sup>4</sup> "Kind Code" <sup>5</sup> (if known) |                                |                                                    |                                                                                 |                |
|                    | 1                     | WO 97/22712 A1                                                                      | 06/26/1997                     | Hoechst Marion<br>Roussel, Inc.                    |                                                                                 |                |
|                    | 2                     | WO 98/42687 A1                                                                      | 10/01/1998                     | DuPont<br>Pharmaceutical Co.                       |                                                                                 |                |
|                    | 3                     | WO 99/13098 A1                                                                      | 03/18/1999                     | Advanced Phytonics<br>Limited                      |                                                                                 |                |
|                    |                       |                                                                                     |                                |                                                    |                                                                                 |                |
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| Application Number     | 10/549,357         |
| Filing Date            | September 16, 2005 |
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| Art Unit               |                    |
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**NON PATENT LITERATURE DOCUMENTS**

| Examiner Initials* | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
|--------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                    | 4                     | NISHIO, T. et al, "Production of Optically Active Esters and Alcohols from Racemic Alcohols by Lipase-Catalyzed Stereoselective Transesterification in Non-Aqueous Reaction System," J. Biochem., vol. 105, no. 4, pp. 510-512, (1989).                         |                |
|                    | 5                     | PATEL, R.M. et al, "Stereoselective Enzymatic Hydrolysis of 2-Cyclohexyl- and 2-Phenyl-1,3-Propanediol Diacetate in Biphasic Systems," Appl. Microbiol. Biotechnol., vol. 34, pp. 10-14, (1990).                                                                |                |
|                    | 6                     | THEIL, F. et al, "Lipase-Catalyzed Transesterification of Meso-Cyclopentane Diols," Tetrahedron, vol. 47, no. 36, pp. 7569-7582, (1991).                                                                                                                        |                |
|                    | 7                     | JOHNSON, C.R. et al, "Enzymatic Asymmetrization of Meso-2-Cycloalken-1,4-Diols and Their Diacetates in Organic and Aqueous Media," Tetrahedron Letters, vol. 33, no. 48, pp. 7287-7290, (1992).                                                                 |                |
|                    | 8                     | THEIL, F. et al, "Kinetic Resolution of Acyclic 1,2-Diols Using a Sequential Lipase-Catalyzed Transesterification in Organic Solvents," J. Org. Chem., vol. 59, no. 2, pp. 388-393, (1994).                                                                     |                |
|                    | 9                     | CARREA, G. et al, "Role of Solvents in the Control of Enzyme Selectivity in Organic Media," TibTech, vol. 13, pp. 63-70, February (1995).                                                                                                                       |                |
|                    | 10                    | BROOS, J. et al, "Activity and Enantioselectivity of Serine Proteases in Transesterification Reactions in Organic Media," J. Chem. Soc. Perkin Trans. 1, vol. 22, pp. 2899-2905, (1995).                                                                        |                |
|                    | 11                    | LEMKE, K. et al, "Lipase-Catalysed Kinetic Resolution of Phenylethan-1,2-Diol by Sequential Transesterification - the Influence of the Solvent," Tetrahedron: Asymmetry, vol. 7, no. 4, pp. 971-974, (1996).                                                    |                |
|                    | 12                    | GILL, J. et al, "Enantioselectivity of Lipase-Catalysed Transesterification of 2-Ethyl-1,3-Propanediol: Comparison of Lipases from Bacterial, Fungal and Animal Sources," Tetrahedron: Asymmetry, vol. 8, no. 13, pp. 2227-2230, (1997).                        |                |
|                    | 13                    | KAWASHIRO, K. et al, "Effect of Organic Solvents on Enantioselectivity of Protease Catalysis," Biotechnology and Bioengineering, vol. 53, no. 1, pp. 26-31, January 5, (1997).                                                                                  |                |

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|-----------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                       | 14                       | LLOYD, R.C. et al, "Probing the Specificity of the S <sub>1</sub> ' Leaving Group, Site of Subtilisin <i>Bacillus lentus</i> Using an Enzyme-Catalyzed Transesterification Reaction," Tetrahedron: Asymmetry, vol. 9, pp. 551-561, (1998).                      |                |
|                       | 15                       | GHORPADE, S.R. et al, "Desymmetrization of Meso-Cyclopenten-cis-1,4-Diol to 4-(R)-Hydroxycyclopent-2-en-1-(S)-Acetate by Irreversible Transesterification Using Chirazyme®," Tetrahedron: Asymmetry, vol. 10, pp. 891-899, (1999).                              |                |
|                       | 16                       | WEBER, H.K. et al, "'Watching' Lipase-Catalyzed Acylations Using <sup>1</sup> H NMR: Competing Hydrolysis of Vinyl Acetate in Dry Organic Solvents," Tetrahedron: Asymmetry, vol. 10, pp. 2635-2638, (1999).                                                    |                |
|                       | 17                       | CARREA, G. et al, "Properties and Synthetic Applications of Enzymes in Organic Solvents," Angew. Chem. Int. Ed., vol. 39, pp. 2226-2254, (2000).                                                                                                                |                |
|                       | 18                       | KLIBANOV, A.M., "Improving Enzymes by Using Them in Organic Solvents," Nature, vol. 409, pp. 241-246, January 11, (2001).                                                                                                                                       |                |
|                       | 19                       | BORNSCHEUER, U.T., "Methods to Increase Enantioselectivity of Lipases and Esterases," Current Opinion in Biotechnology, vol. 13, no. 6, pp. 543-547, (2002).                                                                                                    |                |
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